

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

Amendments To The Claims:

Please amend the claims as shown. Applicant reserves the right to pursue any canceled claims at a later date.

1. (currently amended) A burner apparatus for burning fuel and air to a combustion gas comprising:

a premixing chamber for premixing the fuel and the air with an air inlet for the air to enter said premixing chamber and having a cross-sectional area;

a fuel inlet for the fuel to enter said premixing chamber; and an outlet for a mixture of the air and the fuel to exit said premixing chamber,

wherein said fuel inlet is located between said air inlet and said outlet, further comprising at least one air blocking member situated at the air inlet which blocks a portion of the air flow to create a region having a locally enriched fuel mixture toward a wall of the burner and configured to cause a recirculation zone to develop toward an outer periphery of the outlet.

2. (previously presented) The burner apparatus according to claim 1, wherein said air inlet has in said cross-sectional area an outer periphery and said at least one blocking member located at the outer periphery.

3. (previously presented) The burner apparatus according to claim 2, wherein said at least one blocking member extends towards a main axis of said apparatus.

4. (previously presented) The burner apparatus according to claim 3, wherein said at least one blocking member has at said outer periphery a width which decreases towards said main axis.

5. (previously presented) The burner apparatus according to claim 4, wherein said width decreases continuously towards said main axis.

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6. (previously presented) The burner apparatus according to claim 5, wherein said at least one blocking member has a triangular, a trapezoidal or a partially hyperbolic, elliptic or circular shape.

7. (previously presented) The burner apparatus according to claim 3, comprising a pilot burner centered to and extending a long said main axis for igniting said mixture of fuel and air.

8. (currently amended) A burner apparatus for burning fuel and air to a combustion gas comprising:

a premixing chamber for premixing the fuel and air having a cross-sectional area and extending along a main axis and said premixing chamber comprises a ring channel, ~~with said air inlet having a annulus cross-sectional area inclined to said main axis, comprising a swirl element disposed in said ring channel for imposing a momentum to said flow of air and for feeding said fuel in said flow of air;~~

an air inlet having a annulus cross-sectional area inclined to said main axis, comprising a swirl element disposed in said ring channel for imposing a momentum to said flow of air and for feeding said fuel in said flow of air and the air inlet having a cross-sectional area and an outer periphery for the air to enter said premixing chamber; and

~~an air inlet having a cross-sectional area and an outer periphery for the air to enter said premixing chamber; and~~

a fuel inlet for the fuel to enter said premixing chamber; and an outlet for a mixture of the air and the fuel to exit said premixing chamber,

wherein said fuel inlet is located between said air inlet and said outlet, further comprising at least one air blocking member located at the outer periphery, situated at the air inlet, and extending towards the main axis.

9. (previously presented) The burner apparatus according to claim 3, comprising a perforated plate in said cross-sectional area to which said at least one blocking member is bound.

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10. (previously presented) The burner apparatus according to claim 3, wherein at least four blocking members are distributed irregularly in said cross-sectional area.

11. (previously presented) The burner apparatus according to claim 1, wherein the burner apparatus is located within a combustion chamber of a combustion turbine.

12. (previously presented) The burner apparatus according to claim 11, wherein during operation in said combustion chamber at least one recirculation zone with recirculating combustion gas develops and said locally hot stream of combustion gas caused by said blocking member lies at least partially within said recirculation zone.

13. (previously presented) The burner apparatus according to claim 1, wherein the fuel is a fluidical fuel.

14. (previously presented) The burner apparatus according to claim 1, wherein said at least one blocking member covers less than 30% of said cross-sectional area of said air inlet.

15. (previously presented) The burner apparatus according to claim 13, wherein the fluidical fuel is gas or oil.

16. (previously presented) The burner apparatus according to claim 14, wherein said at least one blocking member cover between 2% and 20% of said cross-sectional area of said air inlet.

17. (currently amended) A burner premixing apparatus, comprising:
a premixing chamber for premixing a fuel and air,
an air inlet having a cross-sectional area operatively associated with the premixing chamber and adapted for the air to enter into the premixing chamber;

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an outlet having a cross-sectional area operatively associated with the premixing chamber and adapted for the fuel and the air to exit the premixing chamber;

a fuel inlet having a cross-sectional area operatively associated with the premixing chamber and adapted for the fuel to enter into the premixing chamber, the fuel inlet located between the air inlet and the outlet and having at least one air blocking member arranged at or near the air inlet for stabilizing a burner premixing flame by locally blocking the flow of the air entering the premixing chamber so that downstream of the outlet a locally inhomogeneous fuel concentration causes a locally hot stream of combustion gas that is hotter than an average flame temperature within the burner and to develop towards a wall of the burner; and

a premixing chamber for premixing the fuel and air having a cross-sectional area and extending along a main axis and said premixing chamber comprises a ring channel, with said air inlet having an annulus cross-sectional area inclined to said main axis, comprising a swirl element disposed in said ring channel for imposing a momentum to said flow of air and for feeding said fuel in said flow of air.

18. (previously presented) The burner apparatus according to claim 1, wherein a portion of the recirculation zone develops at the outer periphery of the outlet.

19. (previously presented) The burner apparatus according to claim 1, wherein the blocking member is situated for stabilizing a burner premixing flame by locally blocking the flow of the air entering said premixing chamber so that downstream of said outlet a locally inhomogeneous fuel concentration results which generates a locally hot stream of combustion gas that is hotter than the average flame temperature.

20. (previously presented) The burner apparatus according to claim 1, wherein the blocking members are arranged asymmetrically on the periphery of the air inlet.